MARINE REVIEW.

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Iron Ore Sales Market—Lake Freights.

To a representative of the MARIEE REVIEW, who was in Pittsburg on Monday of this week, Mr. Curry, who is in charge of matters pertaining to the purchase of iron ore for the Carnegie Steel Company, said that his company had not changed its position regarding prices of iron ore. "We have not solicited negotiations with the ore sales agents," said Mr. Curry. "Some of them came to us several weeks ago and said they were desirous of fixing prices on ore, in order to make up their minds as to whether they would work their properties to full capacity or cut down the mining force. We told them that we were not ready to buy, but offered $3.50 for standard Gogebic Bessemers. We have not changed our position in the matter, and see no reason at present for a change, although we understand that the Aurora and one or two other companies mining standard Bessemers have sold a portion of their 1893 product at $4, the price asked by the ore dealers. We bought some ore—not a very large amount --last week at our price."

Mr. Curry would not say what was meant by the term "our price," and would not state the amount of the purchase to which he referred, claiming that the sellers had requested the Carnegie company to withhold information of this kind. Among the ore dealers it is generally understood that the ore referred to will come from the Pewabic mine, a Menominee range property, in which the Carnegies own a half interest, and that on account of the relations between the mining company and the purchasers the deal can have no effect upon the general market. It is also said that this Pewabic ore is of a special grade and is to be mixed with non-Bessemer ore for the manufacture of Bessemer iron. Pig iron has been a trifle weaker during the past few days, and some of the ore dealers are inclined to charge the weakness to manipulation that is aimed at a depression in iron ore. The Duquesne works of the Carnegie company has been shut down, and it has also been given out in the newspapers that the Homestead works would suspend operations shortly, but as it is known that alterations are to be made in the works at Duquesne, and as the report of a shut down at Homestead has not been confirmed by the management. these stories have had no effect on the opinions held by ore dealers as to prices.

Thus the ore market is practically as it has been since small sales began three weeks ago with furnace men, who have acted independent of the Carnegie and Illinois steel companies. These sales may exceed a million tons, as, in addition to the Bessemer ore that has been placed, the Chapin company is understood to have disposed of more than half of its 1893 product at $3.65 a ton, or 60 cents below the first prices paid for Chapin a year ago. Knowing that the consumption of ore during the past year has been largely in excess of the previous year, and that stocks of coke pig iron were reduced 27,000 tons in March, leaving the supply at about 350,000 tons, or practically a nominal amount, the ore dealers are still strong in their demand for $4 for standard Gogebics. Officers of the Norrie, Ashland, Iron Belt and other companies mining standard Gogebics declare positively that they have sold no ore, and that a marked change must come over the situation before they will sell at a reduction on the prices for which they have been holding out.

No lake freight contracts have been made, and the vessel owners who understand the relations between the ore dealers and pig iron manufacturers seem satisfied to await the outcome of the differences without urging matters. On account of the inactivity in ore, the grain freight market is weaker, however, a number of boats having been chartered for three cents from Duluth to Buffalo. From Duluth to Kingston, five cents is offered. There is some fear of trouble at Buffalo on account of a rush of grain at the opening, but it would probably be as well that such should be the case, as the prospects in iron ore seem certain to improve with delay in the opening of navigation. Coal carriers are in active demand at both Buffalo and Cleveland with the opening rates strong on all upper lake shipments.

Mr. Galwey's Candidacy for the Inspectorship.

John H. Galwey of Detroit, who was up to a few months ago president of the national organization of marine engineers, is a candidate for the office of supervising inspector of steam vessels of the eighth district, now held by Capt. C. H. Westcott. As might be expected, Mr. Galwey's candidacy meets with decided opposition from the vessel owners, on account of his prominent connection with the association of engineers. He has written a letter to several of the lake lodges,of which the following is a copy :

"The election of Grover Cleveland has made a change in the board of supervising inspectors a certainty. I therefore wish to inform the members of the M. E. B. A. that I have concluded to become a candidate for the supervising inspectorship of the eighth district, and would be very grateful to your association for such assistance as you can consistently offer towards promoting my success. Having the endorsement of the congressman from the Detroit district and the assurance of others whose influence is unquestioned that they will support me for the position, I feel certain if the members of our order will make an effort in my behalf, that I will win the appointment. Now it is hardly necessary for me to state that should I succeed, the interests of our organization will ever be an uppermost consideration, and nothing in any way detrimental to its welfare will be carried by the board of supervising inspectors with my consent. I would like if possible to secure the endorsement of every congressman in the district, and am certain that such a result can be obtained, if every association will make such request to its congressman. I do not think it necessary to present a long petition, but simply request it in the name of your association, with seal and signature of your president and secretary. I would like to be furnished with duplicates of the same, to present with my application to the secretary of the treasury."

That portion of the foregoing letter in which the writer says that the interests of the organization of marine engineers will be his uppermost consideration, has given the vessel owners an opportunity to enter protest against the appointment and petitions and remonstrances to President Cleveland have been sent on to Washington by individual owners in several lake ports, as well as the Lake Carriers' Association representing the entire lake marine.

The Cunard Steamship Company presented checks to the engineers and officers of the Umbria for their skill in mending her broken shaft at sea and bringing her into port last December. The subscriptions of the underwriters for the same purpose amounted to $6,000.

Seeking Information About Rafts—Lumber Handlers.

Special Correspondence to the MARINE REVIEW.

BUFFALO, N. Y., April 13.—The vessels that have suffered from rafts have now an opportunity to make known their grievances to some purpose. Secretary Keep of the Lake Carriers' Association, who was made chairman of the committee that is to present the vessel side of the complaint against rafts to the board of engineers in writing, has this week prepared a circular for distribution among captains, asking them to send him an account of any case they may know of where vessels have suffered from rafts, either directly by collision or being driven ashore, or by the displacement of buoys. A prompt response will greatly aid him in establishing the claims made against the rafts.

The applications for membership in the Lake Carriers' Association are coming in quite liberally, but vessel owners can hardly be too prompt in this matter. No final date for closing the books has yet been fixed, but the sooner it can be the sooner the association will know its resources for the season and can lay out its work.

The local lumber shovers' union, through President McGovern of the National Longshoremen's Union, is quietly trying to make capital against the lake lumber dealers, who have thrown the union over, by sending circulars to Saginaw vessel owners complaining that a boycott has been set up against them, and they are trying to array the vessel men against the dealers by calling attention to the new bill of lading, which requires a captain to agree to let the consignee unload his boat at a fixed rate if he chooses. This regulation was, of course, aimed directly at the union, but the rate that has been made has already been adopted by the stevedores and will not change before October. The circular fails, of course, to mentoin these facts. It was not the intention to let the circulars get abroad here, but they are beginning to come back from Saginaw.

It begins to look as though the great $20,000,000 scheme for developing the water front beyond the Tifft farm into a grand system of canals, docks and elevators, which was so ambitiously started by New York parties last winter, has fallen through. One thing is certain—this port, as well as all the other leading ports, has got some work to do before it is ready for the 20-foot channel, and it is not getting ready at an alarming rate.

If the coal shippers got the best of it in the Lake Michigan rate, the vessels are ahead on the rate to Duluth, which was fixed at 50 cents late last week. It seems hardly likely that this latter rate can be held very long, for it is above the average of the season for some time. It is true that there is to be an unusual amount of coal shipped by lake this season. Brokers have been told by railroad men that the roads do not expect to hold their own this summer, on account of the world's fair traffic. This will be sure to throw a large amount of business to the lakes.

Renewal of Licenses.

Editor MARINE REVIEW: I am in receipt of yours of the 8th inst., *in re* the construction of so much of the amendment to Sec. 19, Rule V, Rules and Regulations of the Board of Supervising Inspectors, recently adopted, as contained in the following, quoted therefrom: "Nor shall any license be renewed in advance of the date of the expiration thereof, unless there are extraordinary circumstances that shall justify a renewal beforehand, which may be granted by anticipating, not to exceed thirty days, the expiration of the license; in which case the reasons therefor must appear in detail upon the records of the inspectors renewing the license." Referring to which, you say that "We (you) understand that, in the past, local inspectors on the lakes have renewed licenses to officers at any time within a period of thirty days previous to time of expiration," and you ask, "Does the amendment require a change in this custom?" You suggest a hardship in many cases, if the rule is to be so interpreted.

In reply, I would suggest, that perhaps the best way to satisfy your enquiry would be to explain the origin of the amendment, which was to prevent its being possible through favoritism of the inspectors at any port jumping up licenses without actual experience in the grade of license held by an officer, as had been found to be the case in at least one of the local districts; and also to prevent its being possible for unscrupulous licensed officers getting their licenses renewed so long ahead of legal expiration as to be able to show a license indicating more years actual experience than they were legally entitled to, this to the disadvantage of others having much more experience, but who had only renewed their licenses at the time of their actual expiration.

In wording the amendment to accomplish the object sought, it was thought great care was exercised to prevent any possible construction by a local inspector detrimental to the interests of any licensed officer; as the local inspector was given in the rule a discretion in the matter, that, if wisely exercised, as was expected would be the case, would prevent a hardship in any case that might occur, the only restriction being, that when the rule was departed from, the reasons therefor must appear on the inspector's records, this for his own protection as well as that of the department, in case the inspector should be charged with renewing a license ahead of time, for the personal benefit of the party whose license was renewed, when no real necessity existed therefor.

Until the receipt of your letter, I was not aware of the usage on the lakes to renew licenses to officers "at any time within a period of thirty days previous to time of expiration;" and if it is a common practice, without reference to any necessity, I think it is a practice that ought to be discontinued for the reason that it leads, as may readily be seen, to the very evil that the rule seeks to break up. If there is a real necessity, however, in any given case, the rule is intended to be construed in such liberal sense as not to impose any hardship on the person directly interested, or on commerce.

JAS. A. DUMONT,
Supervising Inspector General.

[The REVIEW erred in saying to Gen. Dumont that local inspectors have renewed licenses at any time within a period of thirty days previous to time of expiration. They have in the past tried to suit the convenience of officers by giving them leeway of a few days, but the statement that thirty days was allowed is probably too broad in any case. We may have something further to say about this rule, but the explanation of the inspector general seems to give good cause for special care in the renewal of licenses.—ED.]

Of Interest to Coal Carriers.

EDITOR MARINE REVIEW:—After having made spring soundings of Racine harbor, it may be of interest to some of your subscribers to know what water there is here at present. The harbor is in a very poor condition. Coal laden vessels bound for this port should not load over 11 feet until some dredging has been done. Dredging will be commenced by the government and city as soon as a suitable dredge can be secured. Masters of steamers who undertake to come into port without the assistance of a tug should not approach the harbor from the southward as there is a bar with only 11 feet of water on it. The deepest channel will be found by coming in from the northeast. After rounding the end of the north pier, keep this pier middling close till half way to the inner light-house; then sheer over to a point little south of the middle of the river till past the Goodrich steamboat depot, and when past this depot the deepest channel will be found in the middle of the river. During the summer the north pier will be extended 150 feet and the south pier 100 feet.

GEO. BRECKENFELD,
RACINE, WIS., April 10, 1893. Keeper of Life Saving Station.

Appointments of Masters and Engineers.

Williams Transportation Company, South Haven, Mich.: Steamers—City of Kalamazoo, Capt. David Morris, Engineer Perry N. Knaggs; H. W. Williams, Capt. John Boyne, Engineer A. R. Knaggs; Glenn, Capt. Frank Swailes, Engineer Perry Cossairst.

Milwaukee & Eastern Transit Company, Milwaukee, Wis.: Steamers—Fountain City, Capt. J. L. Griffin, Engineer Frank Whittier; City of Fremont, Capt. John Coughlin, Engineer ——.

Port Huron and Western Line of Steamers, Port Huron, Mich: Steamers—Colorado, Capt. Geo. L. Thompson, Engineer Thos. Birch; Osceola, Capt. Robt McLeod, Engineer Harvey Depew; Roanoke, Capt. Jas. W. Martin, Engineer Robt. Bruce.

Whitaker, B., Detroit, Mich.: Steamer—Bryon Whitaker, Capt. Augustus Ames, Engineer Jacob Sutter. Schooners—S. V. R. Watson, Capt. R. H. Sunderland; Unadilla, Capt. Chauncey J. Henderson.

Western Transit Company, Buffalo, N. Y.: Steamers—Albany; Capt. A. J. McDonald, Engineer S. B. Muirhead; Arabia, Capt. Robert Murray, Engineer Patrick Welch; Badger State, Capt. James Kennedy, Engineer J. H. Finley; Boston, Capt. Dugald Buie, Engineer Thomas McCabe; Buffalo, Capt. Patrick Shea, Engineer William McNulty; Chicago, Capt. F. J. McCabe, Engineer F. A. Miller; Commodore, Capt. R. D. Gardner, Engineer J. W. Brooks; Empire State, Capt. John Cassin, Engineer G. F. Hale; Harlem, Capt. Frank Williams, Engineer M. J. Laney; Hudson, Capt. J. H. Dissett, Engineer Moses Trouton; Idaho, Capt. G. W. Bryce, Engineer James Anderson; McCormick, Capt. M. A. Huntley, Engineer Richard Spencer; Milwaukee, Capt. Michael Folan, Engineer J. W. Rainey; Mohawk, Capt. Valentine Jones, Engineer Henry Hess; Montana, Capt. S. R. Jones, Engineer William Tibby; Syracuse, Capt. Donald Gillies, Engineer J. W. Mark; Vanderbilt, Capt. Neil McCormick, Engineer F. W. Hale.

Inventions of a Marine Nature.

Specially reported from Washington for the MARINE REVIEW.

494, 550—Mechanism for hatchway door by Warren K. Crofford of New York city and William Bardsley of Kearney, N. J.; filed March 1, 1892; serial number 423, 339.

494; 613—Loading or unloading machine by George W. King of Marion, O.; filed Sept. 16, 1892; serial number 446, 067.

Official Numbers and Tonnage.

The bureau of navigation, E. C. O'Brien, commissioner, assigned official numbers and tonnage to the following lake vessels during the week ending April 8, 1893: Steam—Wotam, Buffalo, N. Y., 886.80 tons gross, 712.26 net, No. 81,432; Lloyd S. Porter, Port Huron, Mich., 536 08 tons gross, 412.21 net, No. 141,264; William Dickinson, Chicago, Ill., 78.98 tons gross, 49.33 net, No. 81,431; Fashion, Port Huron, Mich., 29.26 tons gross, 14.63 net, No. 120,928. Sail—Chetopa, Chicago, Ill., 6.95 tons gross, 6.60 net, No. 126,950.

Lake Carriers' Association.

M. A. BRADLEY, President.

VICE-PRESIDENTS: James W. Millen, Detroit, Mich. — John G. Keith, Chicago, Ill.; Frank J. Firth, Erie, Pa. — W. S. Brainard, Toledo, O.; Thomas Wilson, Cleveland, O. — R. P. Fitzgerald, Milwaukee, Wis.; Peter F. Miller, Buffalo, N.Y. — Alex. McDougall, Duluth, Minn.

Charles H. Keep, Secretary, Buffalo, N.Y. Geo. P. McKay, Treasurer, Cleveland, O.
Harvey D. Goulder, Counsel, Cleveland, O.

As had been expected, the finance committee at its meeting on Saturday last adopted in full for the opening of the present season the schedule of wages put in force at the opening of navigation a year ago. The schedule of a year ago was higher than the opening rates of previous seasons, and the vessel owners have shown a liberal spirit in again adopting these rates, as it seems certain now the contract rates of freight for the season on iron ore will be lower than they were a year ago, whatever the outcome of wild freights may be on grain, coal and other freight. The schedule as adopted is as follows:

LAKE CARRIERS' ASSOCIATION WAGES, ADOPTED APRIL, 8, 1893.

Engineers employed for full season.	Season wages. Per month.
First class—Metal steamers having water bottoms and triple expansion engines:	
Chief engineers	$115 to $125
Second "	75 to 80
Second class—Metal steamers not included in the first class and wooden vessels with triple expansion and with compound engines, except the smaller boats, which may be put in the third class:	
Chief engineers	100 to 115
Second "	70 to 75
Third class—Smaller boats with high pressure or low pressure engines, or with compound engines, covering all boats not included in the first and second classes:	
Chief engineers	80 to 100
Second "	60 to 70
Other help on steamers employed for full season.	
First mates	60 to 80
Second "	45 to 60
Cooks	45 to 55
Steamboat help employed by the month.	Per month.
Helpers	$15 00 to 20.00
Firemen	30.00 to 37.50
Wheelmen	30.00 to 37.50
Lookout	30.00 to 37.50
Deck hands	15.00 to 20.00
Oilers	30.00 to 37.50
Firemen engaged in fitting out and laying up, $1.50 per day, without board.	
On consorts and sail vessels.	
First mates	$42.00 to 60.00
Second "	37.50 to 45.00
Cooks	30.00 to 37.50
Seamen	30.00 to 37.50
Boys	15.00 to 20.00

One result of the meeting in Detroit last week of vessel owners and representatives of the log rafting interests, at which arguments bearing upon the size of rafts were presented to a board of army engineers, will certainly be of great benefit to masters of lake vessels, who are now very much troubled by conflicting lights and fog signals. At the Detroit meeting, the question of lights on rafts came up, and the lumber men agreed [illegible] of the lakes are now [illegible] vessels subject of [illegible] vessel masters in attendance [illegible] James Stone, commodore of the Bradley fleet of Cleveland, who was a member of the committee of vessel owners, was delegated to outline a rule covering all that the vessel owners want in the way of a fog signal and lights for the raft towing boats. Capt. Stone has since prepared this rule and has forwarded it to Mr. Keep, chairman of the vessel owners' committee. The proposed rule provides that instead of the steam whistle now in use boats towing rafts shall use for a fog signal the whistle known as a screecher, which is to be operated under the rules and regulations now governing the use of the steam whistle during thick weather on steamers having a tow of any kind. The lights for raft towing boats, according to the proposed rule, are to be two bright headlights, placed in a horizontal position at a right angle with the head of the steamer, instead of two vertical lights now in use on all steamers having tows. These lights are to be of the same character as the headlights used on steamers towing vessels. They are to be not less than 20 feet above the pilot house and at least 8 feet apart, and to show all around the [illegible] taken for a porting signal, this new plan of having [illegible] steamers adopt the whistle known as a screecher for fog service would seem to settle the difficulty of distinguishing, without complication, the different kinds of craft. Secretary Keep has already begun to collect information from vessel masters relative to damage sustained on account of the raft trouble, and when the question of regulating the size of rafts in connecting waterways is settled, it is expected that this matter of fog signals and lights will also be disposed of. Other members of the committee assigned to this duty with Mr. Keep are Harvey D. Goulder, Jas. Corrigan, Capt. W. S. Mack and Capt. James Stone. Representatives of the rafting interests, who will try to agree with the vessel owners in making recommendations to the army engineers as to what kind of a bill should be passed by Congress, are R. A. Alger, F. W. Gilchrist, B. Boutell, Temple Emory and S. O. Fisher, with S. A. Fisher as secretary.

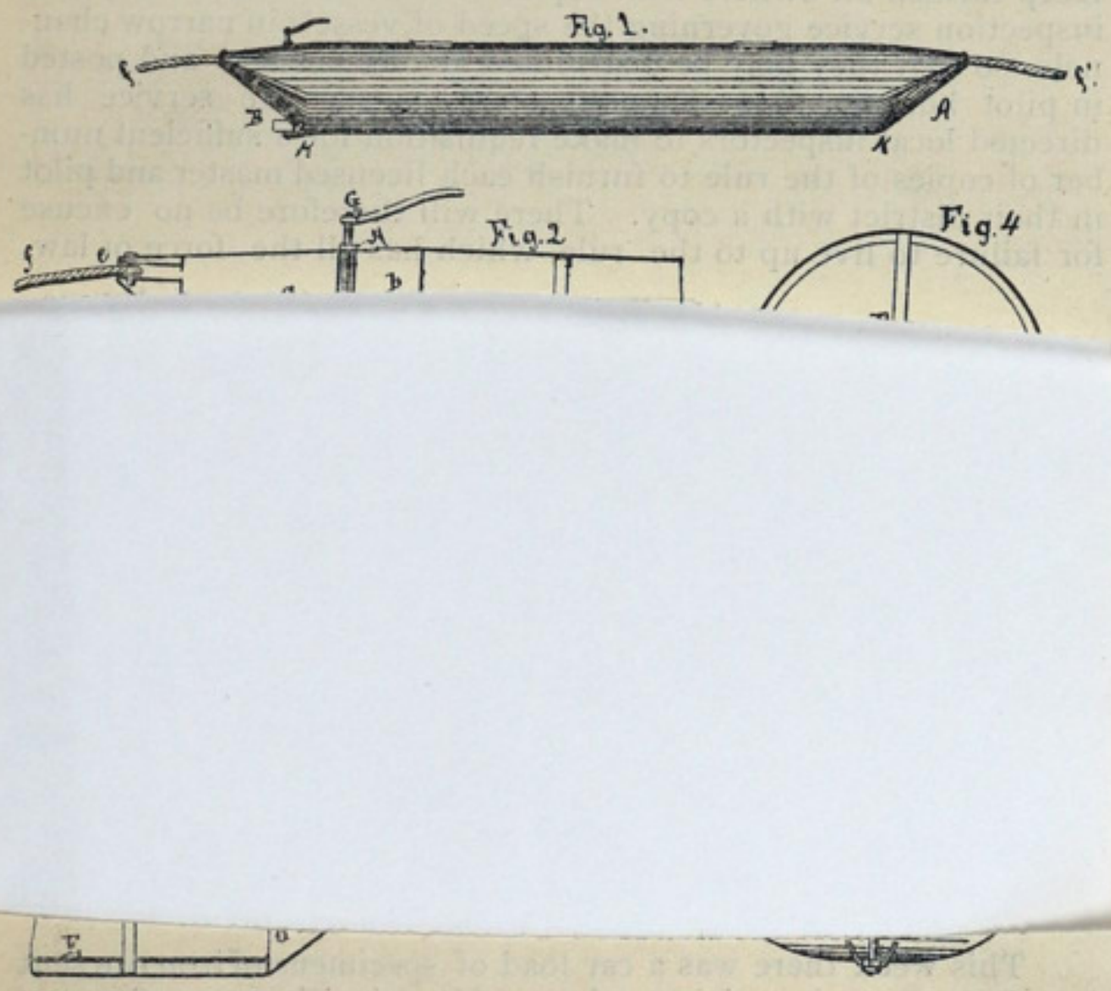
In addition to the order of the association that Secretary Keep furnish all owners with copies of the rule of the steamboat inspection service governing the speed of vessels in narrow channels, so that they may be distributed among masters and posted in pilot houses. Gen. Dumont of the inspection service has directed local inspectors to make requisition for a sufficient number of copies of the rule to furnish each licensed master and pilot in their district with a copy. There will therefore be no excuse for failure to live up to the rule, which has all the force of law.

This week there was a car load of specimens of iron ore sent from Lake Superior mines to the world's fair, Chicago. Some of the pieces were magnificent samples, those of the hard ore mines being especially attractive. The slate and magnetites of the Republic and Champion mines will command the attention of those interested in the mineral exhibit, and none of the ores from the whole world can give better results in metallic iron than those sent from this section. There were also many hundreds of pounds of fancy specimens of iron ore sent to make up a cabinet at the fair.—Iron Ore.

Some trading is reported in stocks of Mesabi iron mining companies listed on the Duluth stock exchange. Following are prices said to be offered on leading stocks, the par value being $100 in all cases excepting those marked with a star, which are $25 par value: Biwabik $28, Cincinnati* $1.05, Cosmopolitan 15 cents, Clark 40 cents, Great Northern $10.35, Keystone 15 cents, Kanawha $1.65, Lake Superior* $3, Little Mesabi $1.50, Lincoln 40 cents, Mountain Iron $75, Minneapolis 15 cents, Mesabi Mountain $19, Shaw $4.75, Washington 15 cents. For stock in the Security Land and Exchange Company, $10 par value, $22 is said to be offered.

Alfred Merritt is reported as saying that the Mesabi road, in which the capitalists controlling the American Steel Barge Company are interested with the Merritt family, will handle 1,500,000 tons of iron ore during the coming season. If it were not for such wild claims as this the Mesabi boomers, as well as the producers of ore in other regions, would not be compelled to hold out until the time for shipment has arrived in an effort to get fair prices for their product.

This invention relates to certain improvements in the form and construction of boats or freight vessels used for carrying merchandise upon bodies of water, either large open lakes and seas or narrow rivers and canals; and its object is to equally adapt it to use in rough or quiet waters, and to be towed with or without the use of the rudder to direct its course. Both ends of the vessel are formed by the continuation of its sides, which are parallel for some considerable distance, and of semi-cylindrical shape above and of ellipsoidal shape below the water mark or wales, and uniformly taper to a point above the bottom of the boat about two-thirds its depth, the principal object of the invention being in the construction of the ends, by means of which the freight vessel is enabled to follow the wake or water way of the towing boat with as little resistance as possible, the ends being so formed as to correspond to the disturbance of the water, both in entering and leaving the same. Most or all the boats or vessels now in use are so constructed that while being towed in in either rough or smooth water they will deviate from one side



to the other, if the rudder is not in constant use. By this improvement in the shape of both ends, and having the tow lines fast so far forward and aft in these vessels, we avoid this cause of sheering from one side to the other.

In the drawings, Fig. 1 represents a longitudinal elevation of the freight boat, in which A is the bow and B the stern of the boat, and gives a general idea of the outward appearance of the vessel, with the rudder in place for steering. Fig. 2 shows the stern in longitudinal section. C C′ are bulkheads built into the vessel at that point of its length where the tapering ends meet with the parallel sides of the hull or body of the vessel. The part of the vessel cut off by the bulkhead C is divided into the water-tight compartments *a b b′ c*, as shown in Fig. 2, and also rudder compartment J, located between compartments *b′ c*, and having above it compartments *a b*, which are separated by the rudder passage G′ as shown. Compartments *a c* are permanently water-tight, while *b b′* are accessible from the deck and hull of the vessel respectively, as shown.

G represents the rudder post, passing vertically through its passage G′, which is of a size sufficient to admit the rudder post easily, and allow it to turn readily when steering the vessel. This rudder post is provided with a screw thread and nut, H, or other equivalent device, by means of which the rudder F may be raised into the compartment J, and thus thrown out of action, when desired, as shown by dotted lines in Fig. 2. The width of this compartment J is shown in Fig. 5, which is a perspective view of the stern of my freight boat.

The part of the vessel separated by the bulkhead C′ is also divided into two water-tight compartments, *a′ b′*, accessible, respectively, from the deck and hull of the vessel, as shown Fig. 3. D D are perpendicular and lateral braces, intended to give stability to the hull of the vessel. E is the flooring in the bottem, *e* is the pin passing through a loop in the tow line *f*, and designed to fasten a number of these freight boats together, and also to attach them to the tug or steam vessel that is furnishing the motive power.

The various compartments shown in the drawings are water-tight, and afford additional security against sinking the vessel in event of collision. When the vessel is in rough water the course followed will be directly that of the propelling steamer, and no necessity of steering the former will be experienced, as its peculiar form will cause it to follow that in front. The tow lines enter the bow and stern of the vessel through pipes at *g*, which prevent admission of water to the hull in case of rough water and high waves. Owing to the peculiar shape, the carrying capacity of these vessels will be very great in proportion to their size. The cross section, Fig. 4, shows the shape of the hull to the wales I I, and the deck or upper section above that of the semi-cylindrical shape, as heretofore described. The horizontal and perpendicular braces are shown at D D. Claims for letters patent are:

1. A freight vessel so constructed and arranged in its outline that the body of the hull has parallel sides for a considerable portion of its length between the points where it tapers to form the bow and stern, which portion shall be semi-cylindrical above and ellipsoidal below the water mark or wales, substantially as described and shown, and for the purpose set forth.

2. A freight vessel so constructed and arranged in its outline that its bow and stern, formed by the continuation of its sides, which are parallel for some considerable portion of their length, and of semi-cylindrical shape above and ellipsoidal shape below the water mark, shall uniformly taper to a point above its bottom about two-thirds the depth of the boat, substantially as described, and for the purpose specified.

Publications.

In a six-page pamphlet on the "American Merchant Service, its needs and abuses." R. P. Joy, Detroit, Mich., presents a clear, concise statement of the condition of the merchant marine of this country and rehearses the causes as follows: "The report of the commissioner of navigation dated June 30th, 1892, shows that American tonnage engaged in foreign transportation fell from 70.56 per cent. of the total tonnage entered at the ports of the United States in 1856 to 20.61 per cent. so entered in 1892. The value of merchandise imported into and exported from the United States in American vessels fell from 73.7 per cent. of the total value of imports and exports in 1856 to 12.3 during the year ending June 30th, 1892, showing American foreign commerce practically destroyed. According to the statement of the postoffice department, the government paid for sea conveyance of the United States mails in the transatlantic service to foreign steamship companies during the last fiscal year $449,405.19, and practically nothing to American vessels. It is estimated that the receipts from passengers and freight in the transatlantic trade alone amounts to $200,000,000, the whole of which is paid to foreigners."

The International Yacht Publishing Company, 100 Broadway, New York, N.Y., has favored the REVIEW with some seventy-five large photo-gravures of American yachts, these pictures being advance sheets from the two volumes which will be published soon by that company. Price of the work in two volumes will be $20, and the illustrations alone are almost worth that amount.

The April number of the busy man's magazine, the Review of Reviews, published at 18 Astor place, New York, N. Y., contains a very nice illustration of the battle ship Indiana, and a synopsis of what is transpiring throughout the world. The subscription price is $2.50 per year.

The MARINE REVIEW has been supplied by the U. S. Hydrographic office with a full set of charts, corrected according to latest information, of the St. Lawrence river.

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The federal and state laws of the United States have hitherto been singluarly adverse to shipping interests, and while every other industry has received encouragement and support through a protective tariff that of shipbuilding has been left to take care of itself. A free-trade advocate, discussing the merits of the Cockran bill "to encourage American shipping," declares that "there is very little sentiment in the steamship business," which might be further extended to include all sorts of business. Fortunately for American industries sentiment, which in this application stands for national pride, has made them self-supporting and has conferred benefits on all classes alike. Without this sentiment we should still be dependent upon the factories of the old world; and as, the genuine free-trader clamors for, be content to raise breadstuffs to barter for articles manufactured abroad. American bottoms declined from 66.04 in 1860 to 20.61 per cent. in 1892, and exports in American bottoms were lowered from 66.5 to 12.3 per cent. Because of this lack of sentiment, the only four steamers flying the American flag in the Atlantic fleet were obliged to succumb, in 1884, to the hundreds of competing foreigners; and our government paid in 1889 only about $110,000 for the transportation of mails in American vessels, while foreign steamship lines received over $510,000.

It is admitted that the first cost of a ship here is greater than in Scotland and that the expense of running sailing and steam vessels is greater under the American flag than under any other flag; but in the first cost of the vessel the difference is actually not so great as to make ship-owning unprofitable, as our vessels compare favorably in every respect with similar ones built abroad for like purposes, and will last as long. Opponents at home argue that the first cost and running expenses of American vessels prevent their profitable employment, and our adversaries abroad, such as shipbuilders and underwriters, contend that American ships are lowest in the scale of duration and they therefore discriminate against American bottoms. It is evident that these charges of inferiority are

steel is

						Cost.	Ton
Chicago	Cr.	1883	4,500	5,084	15.33	$889,000	$197
Boston	Cr.	1883	3,189	4,030	15.60	619,000	194
Dolphin	D. V.	1883	1,485	2,240	15.5	315,000	212
Newark	Cr.	1887	4,083	8,869	19.	1,248,000	305
Charleston	Cr.	1887	4,040	6,666	18.2	1,017,000	251
Baltimore	Cr.	1887	4,600	10,064	19.58	1,325,000	284
Philadelphia	Cr.	1888	4,324	8,815	19.68	1,325,000	306
Yorktown	G. B.	1887	1,700	3,660	16.65	455,000	262
Petrel	G. B.	1887	890	1,513	11.55	247,000	277
Montgomery	Cr.	1890	2,000	5,400	17.	612,500	306
Machias	G. B.	1890	1,050	1,600	14.	318,000	303
Cincinnati*	Cr.	1890	3,183	10,000	19.	†1,100,000	345
Olympia	Cr.	1890	5,500	13,500	20.	‡1,796,000	326
Columbia	Cr.	1890	7,350	21,000	21.	‡2,725,000	370

*Building in navy-yard. †Complete except armament. ‡Complete except armament and equipment.

Foreign Navies.

Nationality.	Name.	Class.	Built.	Tons.	Horse Power	Speed.	Contract Cost.	Cost per Ton
British	Leander	Cr.	1880	4,300	5,500	17.	$793,335	$184
British	Terpsichore	Cr.	1888	3,400	9,000	20.	781,610	229
British	Surprise	D. V.	1883	1,650	3,030	17.	346,820	210
French	Alger*	Cr.	1887	4,160	8,000	19.2	1,272,515	278
French	Davoust*	Cr.	1887	3,027	9,000	20.	965,200	318
Spanish	Reine Regenta	Cr.	1888	4,800	11,000	20.7	1,100,000	228
German	Princess Wilhelm	Cr.	1885	4,300	8,000	18.	1,125,000	261
British	Archer	T. Cr.	1885	1,770	3,500	17.	336,905	190
British	Bellona	Cr.	1888	1,830	6,000	19.5	390,025	213
French	Lalande	Cr.	1886	1,877	6,000	20.5	591,875	310
German	Wacht	D.V.	1887	1,240	4,000	20.	357,000	286
British	Mercury*	Cr.	1876	3,730	7,290	18.	1,128,255	302
French	Cecille	Cr.	1885	5,766	9,600	19.	1,498,010	259
French	Le Tage	Cr.	1885	7,045	10,330	19.	1,767,005	250
British	Endymion	Cr.	1888	7,350	12,000	19.75	1,508,540	205
British	Blenheim	Cr.	1888	9,000	17,000	21.	1,829,910	209
British	Blake*	Cr.	1888	9,000	17,000	21.	1,672,930	185
British	Edgar*	Cr.	1888	7,350	12,000	19.75	1,616,120	220

*Built in dock yards, not including established charges in British dock yard.

M. Dislere, writing in 1878 about British and French shipbuilding, said that the average wages paid in British dockyards were 6 fr. 7c. ($1.34) per day, against 2 fr. 58c. (51.6 cents) in French dockyards, yet the cost of work was about the same in the two countries. Captain Gambier, R. N., in the Engineer of March, 1887, describing shipbuilding and engine work in Italy, shows that it costs 9 cents per pound for labor, and yet wages are much lower than in England. In December, 1890, the London Times claimed the relative cost per ton weight of hull to be: In England, £30 5s.; in France, £46 9s.; and in Russia, £87 5s. It gave also the cost of engines per horse power at £30 4s. in England and in the United States at £56.

Coming down to a later date, the average wages in French dockyards in 1892 were 69 cents per day, and in British dockyards $1.21. For the corresponding time, the average wages paid in the navy yards of the United States may be assumed to be $2.40, and the wages thus stand in the following order:

United States, $2.40=2× England and 3½ × France.
England, $1.21=½ of U. S. and 1¾×France.
France, .69=28¾ per cent. of U. S. and 57 per cent. of England.

Now, as to material, the cost of steel for the ships built for the United States navy during 1887 and 1888 was not less than 4 cents per pound, against 2½ cents paid in England during the same period. Assuming that this same difference in cost extended to all other kinds of material used in ship and engine construction, the account stands 60 per cent. to the disadvantage of this country. Taking a ship like the Charleston, as an example for comparison, with a similar British ship, the proportionate expenditures are 69 per cent. for labor and 31 per cent. for material of the sum total, which would make the cost of the American-built ship 72.6 per cent. greater than the British-built. The table of comparative cost of ships does not however give any such results, and besides, it is conceded that every vessel built for our navy from a foreign ship is a great improvement on its prototype; that the material used is superior to that used in England; and that our ships are fitted up in a manner such as to make them luxurious in comparison with foreign ships.

The foregoing tables prove conclusively that this country, unskilled as it was claimed to be in building ships of war, has been able not only to copy successfully but also to improve greatly upon the war vessels built abroad. Six years ago neither shafts, gun forgings nor armor could be produced in this country, and we were dependent upon England and Germany. At the present time we have reached not only the height of foreign achievements in ships, gun, and armor, but have improved upon them; and if navy-building be permitted to go on, establishments will multiply and improve so as to make it not only possible but quite probable that the United States will become the factory of war material for such countries as now go to England, France and Germany.

(TO BE CONTINUED.)

During the month of March the Flint & Pere Marquette and Grand Haven steamers carried out of Milwaukee 210,807 barrels and 14,666 sacks of flour, 286,800 bushels of oats, 51,611 bushels of barley and 20,000 bushels of rye. From Dec. 1 to April 1 the steamers have carried 684,424 barrels of flour, 1,328,655 bushels of oats, 358,017 bushels of barley, 68,430 bushels of rye, 15,000 bushels of wheat, and 8,013 bushels of corn.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Chicago Office, Western Union Building, 110 LaSalle Street.
Published every Thursday at No. 516 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

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ONE objection seems to stand in the way of adopting the very good suggestion made by Capt. Alex. McDougall, that the principal vessel owners sign an agreement to aid each others' vessels when in distress, and that salvage claims be fixed by a committee made up from parties to the agreement. Hull underwriters might readily give a hand to the support of such a scheme, by giving consent to it on account of the benefits in which they would have a share, but difficulty and complications would arise with insurers of cargoes, who can not be reached as conveniently as their associates in the hull business, as the underwriting interests in the cargo are liable to be different on every trip made by a vessel during the season of navigation. The scheme was brought up at a meeting of vessel owners—not the Lake Carriers' Association—in Cleveland on Saturday last, and it was looked upon with considerable favor but with doubt as to its practicability. The intention is to make it a private combination, taking in only the best class of vessels. It will be given consideration by a committee, consisting of H. G. Dalton, M. A. Bradley, B. L. Pennington and Captains John Moore and John Mitchell, all of Cleveland.

IN the first part of an article on "Ship Building Here and Abroad," which is printed in this issue of the REVIEW, Naval Constructor Hichborn, U. S. N., shows what this country has done in the construction of a navy. In a second part of the article, which will follow next week, he supports the claim that as naval ship building is the highest grade of ship construction, it follows that when occasion demands we shall be able to turn out duplicates of and improvements upon such ships as the New York, Furst Bismark, Teutonic and other merchant ships, as the building of large ocean steamers presents less difficulties than that of ships of war of moderate size. There are many citizens of this country who will not agree with Mr. Hichborn in his plain advocacy of government support in building and operating ships, but the article is nevertheless interesting.

THE Canadian parliament wisely refused to pay any attention to the scheme for a canal in Canadian territory between Lakes St. Clair and Erie, which would entail an enormous expense and at the best would simply parallel the present St. Clair and Detroit river route, the gain being only fifty-seven miles. Whatever may be the question regarding Canada's claims to channels in the St. Clair and Detroit rivers, her rights are fully protected by treaties, and the people of the United States are just broad-minded enough to rejoice in seeing the Dominion apply any spare money it may have to completing the work so long delayed on the St. Lawrence.

AN advance in freight of ten cents a ton, to take effect May 1, has been agreed upon by railways carrying iron ore from Lake Erie docks to Pittsburg. The advance will, of course, have no effect on vessels or iron ore producing interests, as sales of ore are made subject to delivery at Lake Erie ports. The rate to Pittsburg is $1.15 a ton.

SEVENTY-FIVE millions of dollars is the estimated cost of a ship canal of suitable dimensions through American territory from the lakes to the Atlantic seaboard. This seems like a vast amount, but it is only equal to the United States pension list for six months.

Three of the several lumber steamers building on the St. Clair river have been launched within the past week. At Port Huron, Saturday, the Jenks' Ship Building Company launched the Lloyd S. Porter, one of the steamers which they are building for sale. The second boat, which is larger than the Porter, is well under way and will be ready to go into commission shortly after the opening of navigation. The lumber steamer being built by Alex. Anderson, of Marine City, for Hurd & Hanenstein of Buffalo, has also been launched. She is about 190 feet over all and will carry 1000 tons of coal. The steamer built by A. Smith of Algonac for A. W. Comstock of Alpena was also launched Saturday. This boat, which is named Interlaken, will carry about 800,000 feet of lumber. Two boats are still on the stocks at Marine City. One of them, a big general freight carrier building for Marine City parties, is well under way at the yard of Morley Bros., and the other, a tow barge building by M. P. Lester for Curtis & Brainard of Toledo, will be ready for service shortly after the opening.

The Milwaukee Dry Dock Company will build a tug 70 feet over all for the owners of the tug George Green. The engines, to be built by the Sheriffs Manufacturing Company, will be 14x16 inches. Joseph Wolter of Sheboygan, Wis., has secured a contract to build a fire boat for the city of Milwaukee, the engines and pumps for which will be constructed by the Charles F. Elmes Engineering Works of Chicago.

The Canadian steamer City of Collingwood, building at Owen Sound for the North Shore Navigation Company, will probably be launched next week.

The new steamer City of Holland was launched at Saugatuck Monday. She is of about 600 gross tonnage and will run between Holland and Chicago.

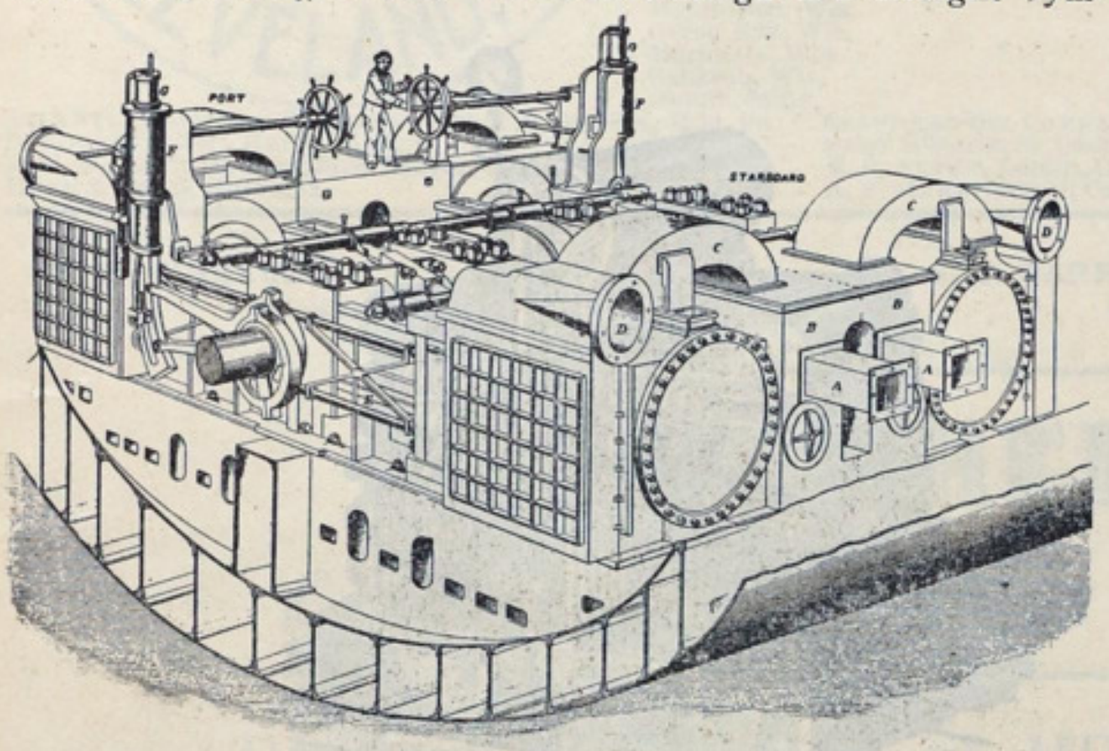
Sault Canal Draft.

Through a typographical error, an item in last week's issue of the REVIEW placed the St. Mary's Falls canal draft for the opening at 14 feet 6 inches. The draft should have been reported, according to a letter from Harvey's Marine Bureau, at 13 feet 6 inches, and even this is an outside figure, as letters to vessel owners say that the canal authorities will not advise loading to more than 13 feet 4 inches. This draft is somewhat lower than at the opening last season.

There will be about 18,000,000 bushels of wheat in store and afloat at Duluth and Superior by the opening of navigation, which is about 4,000,000 bushels more than last year.

Engines of the Great Eastern.

About seven years ago, when the mammoth steamer Great Eastern was moved by her own machinery from Milford Haven to Liverpool, after lying idle for more than a dozen years, the Engineer of London had engraved a prospective drawing of the screw engines. As an indication of the great change that has come about in screw engines during a quarter of a century past, Industries of San Francisco reproduces the drawing as shown herewith. "The engraving is also of interest," says the San Francisco journal, "from the fact that the engines were made at the works of James Watt & Co.. Soho, the shop of Boulton & Watt, which was a noted engine works at the beginning of this century, and long before. The whole design is a straight sym-



metrical example of practice there, and a type only recently abandoned in war vessels, where the object was to place the machinery below the water for protection from shot. The rectangular section for various castings about the engines look queer to us now, but it must be remembered that the pressure of steam used at that time could be held by castings of any form. Any section thick enough to be run in casting would withstand 25 to 30 pounds per inch of pressure. The whole arrangement is extremely simple, and can be readily followed out by any steam engineer without explanation."

Telegrams Bearing Upon the Opening of Navigation.

Following are some telegrams received by the REVIEW on Thursday, the 13th inst., relative to conditions at upper lake ports bearing upon the opening of navigation:

Port Arthur, Ont., Thomas Marks & Co.: "Ice between three and four feet thick on Thunder bay and very heavy outside. The weather is mild and wet. There is no chance for navigation opening within thirty days."

Two Harbors, Minn., Thomas Owens: "The ice moving to-day with a heavy storm, wind and rain. Indications are that the harbor will be clear by the 20th."

Ashland, Wis., J. W. Coria: "Ice ought to be out between the 25th and May 1. It is getting very rotten."

Duluth, Minn., B. B. Inman: "Heavy rain having effect. Ice in the harbor is pretty well gone. Ten days of the present weather would destroy all ice at this end of the lake."

Mackinaw City, Mich., Mrs. Luella Stimson: "Heavy east wind Tuesday night and southwest gale with warm weather Wednesday has about used up the ice. The weather continues threatening and the remaining ice will probably be driven completely out of the Straits Thursday."

Escanaba, Mich., H. A. Barr, dock manager: "With continuous gale from south and southwest Tuesday and Wednesday, the ice in Green Bay commenced moving. A strong wind from the north and northwest would drive it out into Lake Michigan. The ice in Little Bay de Noque has not moved and is strong. From the present outlook, I think it will be ten days, if not longer, before ice goes out of Little Bay de Noque."

Buffalo, N. Y., John Chamberlin: "A narrow strip of ice along the north shore, not extending beyond Point Abino, is all that can be seen. There is a report that the south shore is clear to Dunkirk, and probably to Erie. With southerly winds it is believed that vessels could find open water all the way up the lake. The ice is very hard whenever found and can not be bucked through. Capt. Kerr of the steamer Fay is preparing to leave light for Cleveland in a day or two."

Sault Ste. Marie, Mich., Harveys Marine Bureau: "The weather during the past week has caused a material difference in the condition of the ice in St. Mary's river and its approaches. Heavy gales of wind have broken the ice at both Whitefish point and Detour entrance. The condition of the ice in the Sault river proper was such at noon Wednesday as to admit a three-ton load of wood crossing at Mud Lake, and it is equally as strong in Georgian bay. Reports from the life saving station are to the effect that there are immense fields of ice in view, but it is in a moving condition. Indians say that in the vicinity of Parisian and Sand islands all is clear. With favorable weather St. Mary's river may open by April 29, but in comparing the condition of the ice with last year, indications are for a later opening. Local marine men are of the opinion that boats will be unable to reach here before May 1 at the earliest, but that the big freighters might force navigation a few days earlier than that."

Around the Lakes.

Union seamen at Chicago have fixed wages at $2 a day, the rate to prevail until fall.

Three whalebacks are to be launched at West Superior as soon as the ice will permit.

Parties in need of revolving derricks of three and five tons capacity can learn of an advantageous opportunity to buy if they will address the MARINE REVIEW, No. 516 Perry-Payne Building, Cleveland, O.

Before you fit out your yacht to go to the world's fair, or on your cruise send your address to F. G. Overbeke, 115 Woodland ave., Cleveland, O., for a finely illustrated catalogue showing uniforms, caps and specialties necessary for a comfortable cruise.

W. A. Creech, of Cleveland, who is selling his tug property, sold the Allie May to Capt. George W. Meyers of Oscoda, who in turn sold the boat to W. A. Collier of the Vessel Owners' Towing Company, Cleveland. With this boat and the two new boats now nearing completion at Buffalo, the V. O. T. Co. will have a fleet of ten tugs. The tugs building at Buffalo are to be named Chris. Grover and Wm. Kennedy.

Personal Mention.

Capt. Henry Jenking, sixty-eight years of age, died suddenly at Walkerville, Ont., last week. He built a number of wooden transfer steamers which were engaged in carrying railway cars across the Detroit river.

G. J. Harris has been appointed acting agent of the Ogdensburg Transit Company (Central Vermont Line of steamers) at Chicago, vice F. A. Pawley, transferred to Minneapolis. Mr. Harris had been assistant agent for several years.

W. F. Lindsley, who is in charge of the affairs of the Chicago & Northwestern Railway at Escanaba, Mr. La Salle of La Salle & Wolvin of Duluth, James McBrier of Erie, Pa., F. W. Wheeler of West Bay City, and Stanley B. Smith of Stanley B. Smith & Co., coal dealers of Detroit, were among visitors who were looking after business matters in the marine line in Cleveland during the week.

Steam Capstans.

We had occasion to refer to the Providence steam capstans, as made by the American Ship Windlass Company, of Providence, R. I., in a recent issue, and noted some recent orders which that company had taken, showing the multiplicity of uses for which these capstans are adapted, and the many purposes for which they are gradually being introduced. The company has just received orders for a steam capstan to go to Portland, Ore., for government use, and also for a dock steam capstan to go to Duluth.

These capstans are made by a perfect system and of the very best material, so that they are sure to work satisfactorily in all cases, and being made by special machinery, the parts are interchangeable and can be always replaced at a moment's notice. Machinery built in this way is always superior to that built by the rule of thumb and this superiority appears especially in the case of the Providence capstans.

The Smith Water Tube Boiler.

The accompanying cut illustrates the Smith safety water tube marine boiler with the steel jacket, showing also the bare boiler, grates and ash pan. It will be noticed that while this boiler is similar in many respects to the ordinary types of pipe or water tube boilers, yet it differs from them all as regards design and economy of space for the actual amount of heating surface contained. The four principal points made for this boiler by the manufacturers are these:

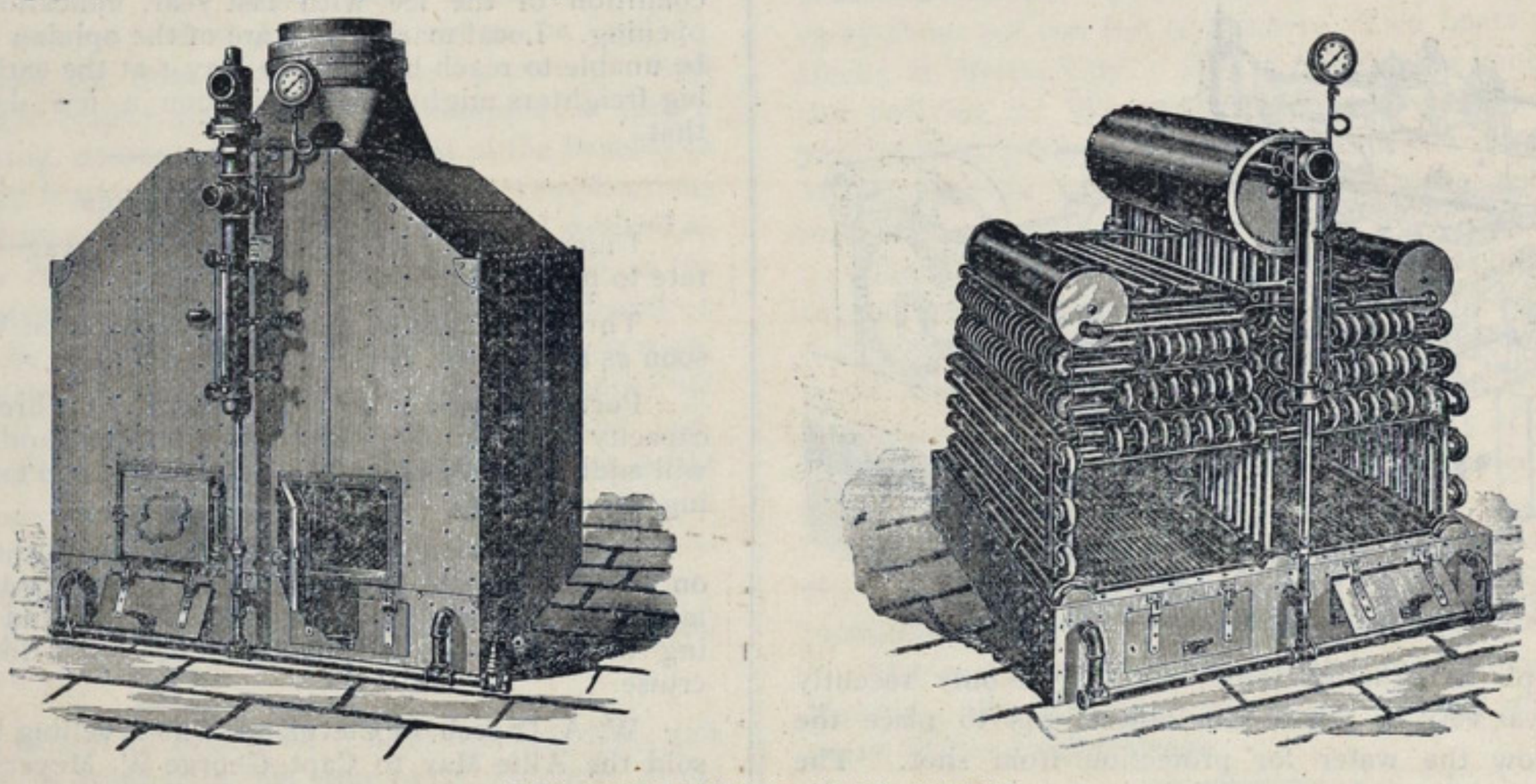
Perfect freedom and equal circulation of the water throughout every pipe in the boiler, and when the boiler is emptied by opening the blow-off cock not a particle of water remains in it.

The steam generating pipes are so arranged that there is absolutely no chance for soot or ashes to lodge or accumulate on or between the pipes, there being square openings left up through the entire mass of pipe for the heat and gases to circulate through, the same in effect as in ordinary tubular boilers.

The horizontal fire box pipes are so arranged and supported by the three (or if so desired, four) vertical pipes, that it is impossible for them to sag or drop down even if, through carelessness, they become overheated or red hot. The fire box is also surrounded at the sides and back of the boiler with a double row of steam generating pipes, so that the fire has very little effect on the asbestos-lined boiler jacket, and therefore very little heat is lost or transmitted to the boiler room.

The feed water pipes, feed water heaters and receivers are located on top of the steam generating pipes, so that the waste heat, which will not generate steam, on account of its being too low a temperature, may be taken up and utilized in heating the feed water. The feed water drums are located at the right point so that they also act as feed water receivers, or reservoirs, which carry the greatest amount of water just at the point where the water should be kept in the boiler, so that the water will not fluctuate rapidly should the pump or injector not be regulated accurately.

The Huyett & Smith Manufacturing Company of Detroit, Mich., will be glad to correspond with those whose requirements call for a boiler of the above type. The boilers are made from 20 to 200 horse power, and each one is fully warranted.



THE SMITH WATER TUBE BOILER.

American "Cup Defenders."

The all-absorbing topic among yachtsmen is, just now, "cup defenders," and what they will look like. With the aid of the Boston Herald and through the personal efforts of our special agent we can say that these lines and dimensions are probably correct. We present them to our readers with the surety that they are as authentic as are known. Of the the two Boston boats there is but little difference, either in lines or dimensions, so far as the hulls themselves are concerned. The Paine boat will be a centreboard fin, with a second small board forward. She will measure 123 feet over all, 84 feet on the water line, 22½ feet beam and 14 feet draft. As against this the Boston syndicate boat measures 122 feet over all, 85 feet water line, 23 feet 10 inches beam and 22 feet draft. This boat will have a lead bulb on the bottom of her fin. The difference between these two boats is in no wise so marked but that sail power and hand will have much to do with results as between the pair.

Of the Brlstol boats, and taking them in their order, the Navahoe just launced at Herreshoff's yard, is 128 feet over all, 84 feet on water line, 23 feet beam and 12 feet 6 inches draft. She is of the centreboard type, having a steel plate with about 10 feet drop, is now rapidly being rigged, and will undoubtedly be the first in commission. The Herreshoffs' second boat for the Roger's syndicate is a keel, 124 feet over all, 85 feet water line, 24 feet beam and 14 feet draft. She, like the Navahoe, is built of steel.

The boat for the Morgan syndicate is 124 feet over all, 85 feet water line, 26 feet 3 inches beam and 13 feet 6 inches draft, and is to be plated under the body with Tobin bronze and finished out of water with steel. She will be fitted with a Tobin bronze centreboard. This gives the Bristol firm two centreboards and one keel representative, as against the two boats of the fin type from Boston. If this is so, and the Herreshoffs are not to have a fin in the field, it may not be a meaningless remark to say to New York Yacht Club men, as to Rhode Island builders "keep your eye on the 'Hub.'"—Rudder.

Officers of the Wisconsin Steamship Company of Milwaukee, controlling the steamers Ferdinand Schlesinger, Thomas Davidson and James H. Dyer, are: President and treasurer, Thomas Davidson; vice president, Frank L. Vance; secretary, Carl Joys, directors, Thomas Davidson, F. L. Vance and John Saveland.

OFFICE OF LIGHT-HOUSE ENGINEER, Fifth District, Baltimore, Md., April 7, 1893. Sealed proposals will be received at this office until 2 o'clock p.m. of Wednesday, the 17th day of May, 1893 for furnishing the materials and labor of all kinds necessary for the completion, delivery, and erection at the sites of the metal work of Cape Charles and Hog Island Light Towers, Virginia, for a fixed sum for each light tower or for an aggregate sum for both towers. The bids most advantageous to the United States Government will be accepted. Plans, specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any and all bids and to waive any defects. ERIC BERGLAND, Captain of Engineers, U. S. A., Light-House Engineer Fifth District. 13 to 12

U. S. ENGINEER OFFICE, HICKOX BUILDing, 185 Euclid Avenue, Cleveland, Ohio, April 1st, 1893. Sealed proposals for dredging in straight channel at Sandusky Harbor, Ohio, will be received at this office until 2 p.m., standard time, of Friday, April 28th, 1893, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. JARED A. SMITH, Lieut.-Col., Corps of Engineers, U. S. A. 13-20-27

UNITED STATES TREASURY DEPARTMENT, Steamboat Inspection Service, "The Maltby." Washington, D. C.

A Special Meeting of the Board of Supervising Inspectors will be held at Washington, D. C., on May 10th, 1893, to determine and prescribe the lights for "Barges and Canal Boats when in tow of steam-vessels," in accordance with the Act of Congress approved March 3d, 1893.

All persons interested are invited to present their views in writing to the Supervising Inspector-General, Steamboat Inspection Service. "The Maltby," Washington, D. C., also to appear before the Board in person when it meets if they desire to do so.

No other business will be transacted by the Board except that specially referred to in this advertisement. JAS. A. DUMONT, Supervising Inspector-General. 6-13-20-27-4

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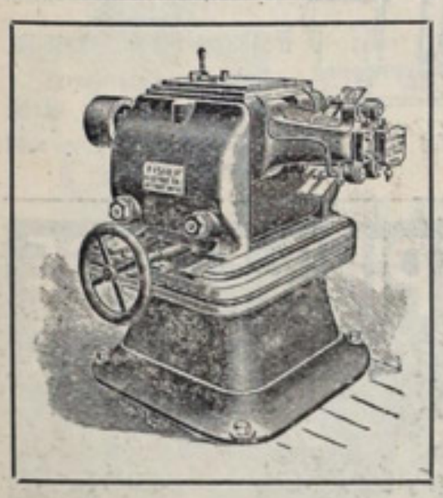

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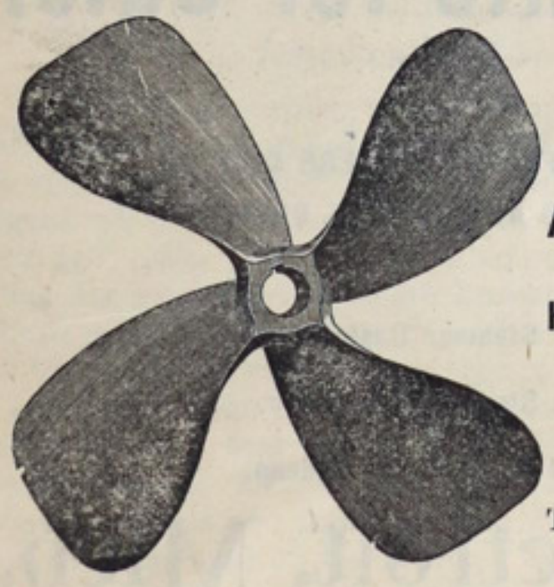

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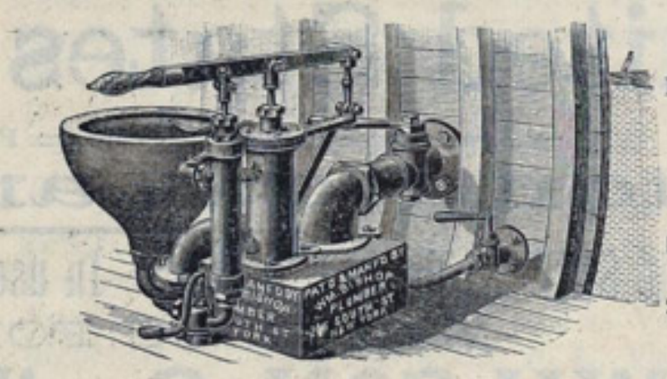

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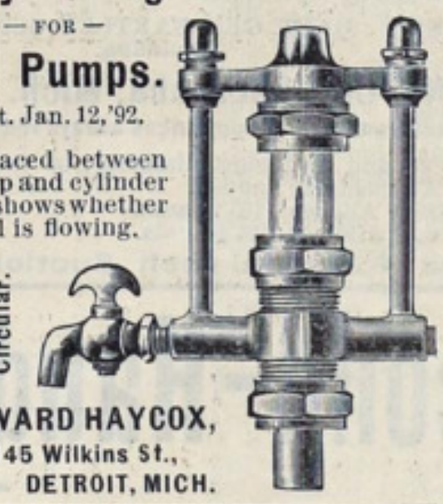

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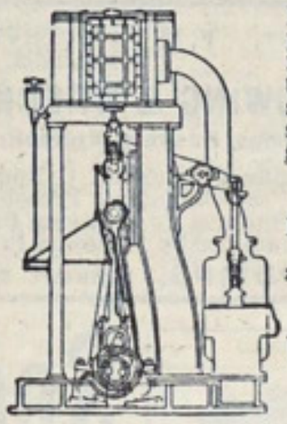

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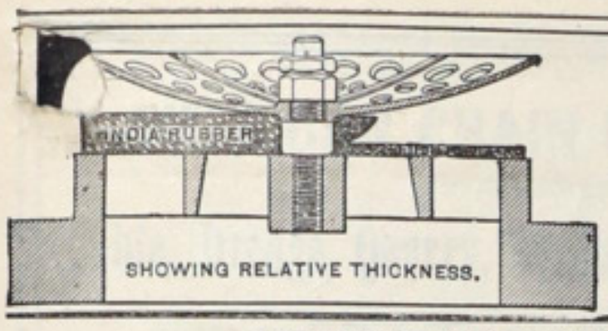

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OFFICE OF ENGINEER NINTH AND Eleventh Districts, Detroit, Mich.. March 28, 1893, Proposals will be received at this office until 3 p. m. of Saturday, th- 15th day ot April, 1893, for furnishing 400 cords, more or less, of riprap stone, delivered in place aro nd the pier of Chicago Harbor Light Station, Ill. Specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any def-cts. M. B. ADAMS, Major of Engineers, U. S. A., Engineer 9th Light House District. 6-13

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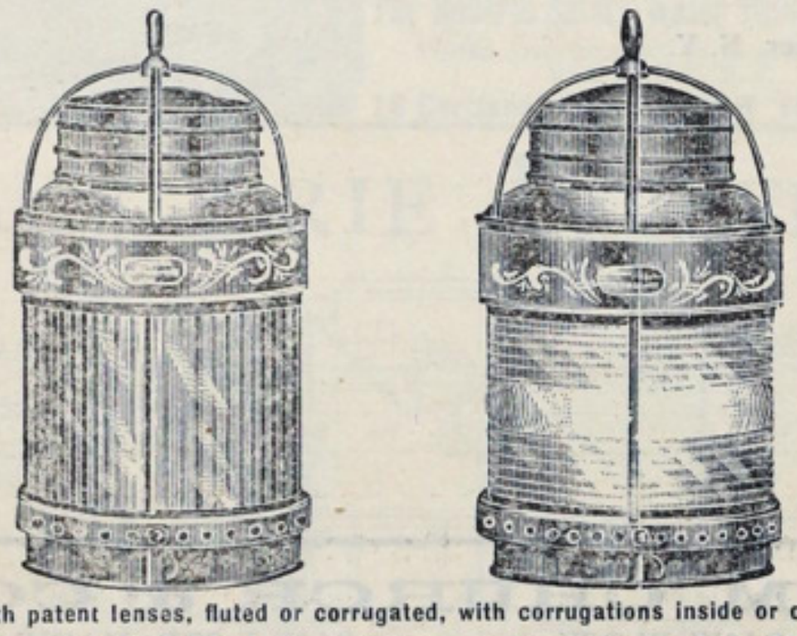

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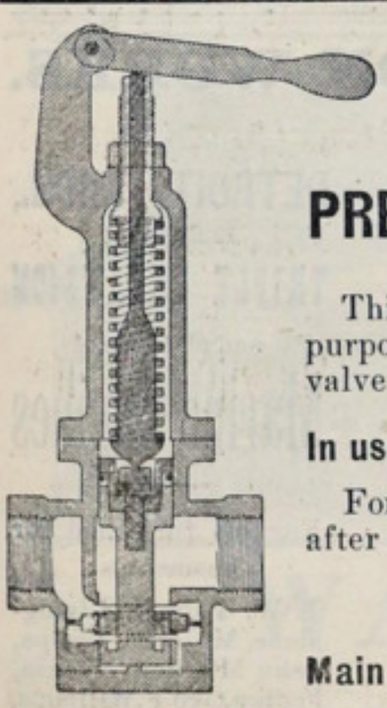

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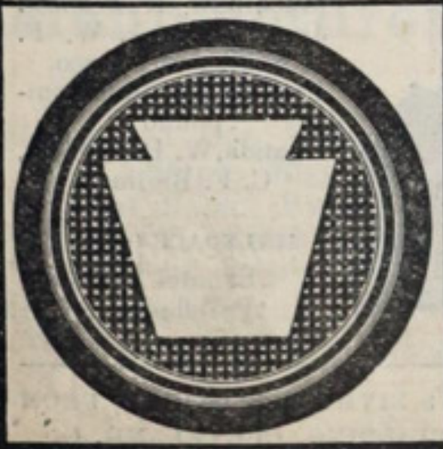

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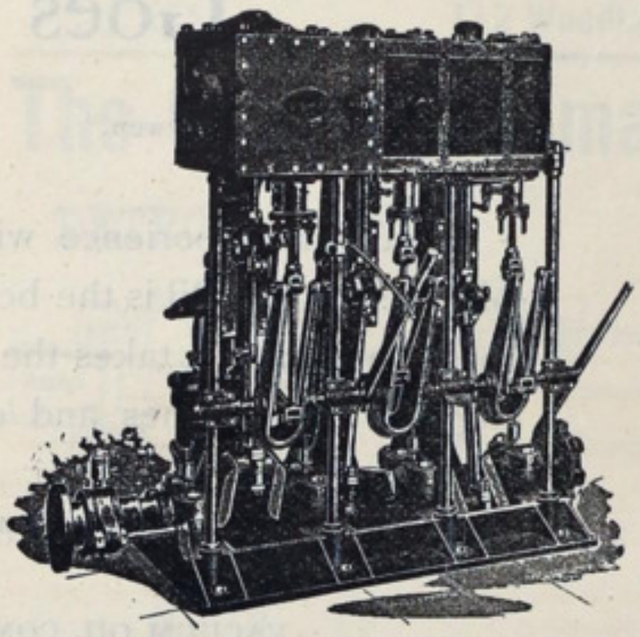

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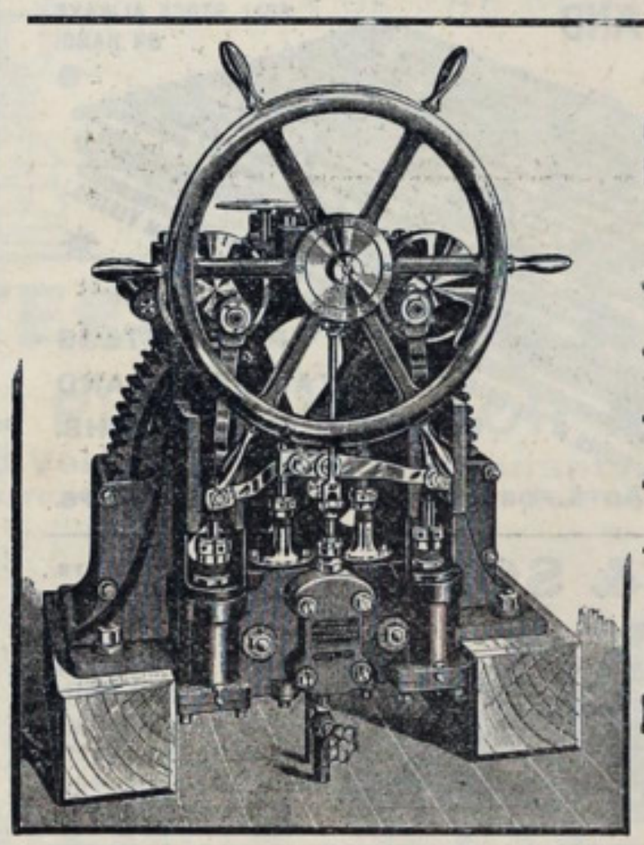

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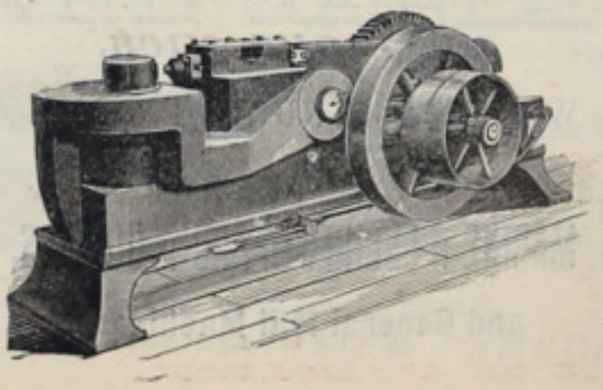

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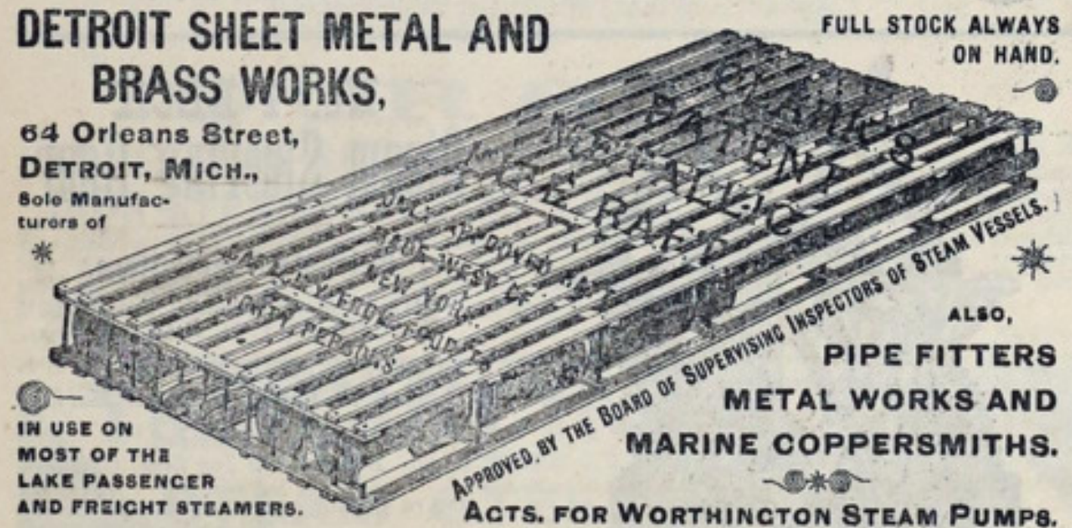

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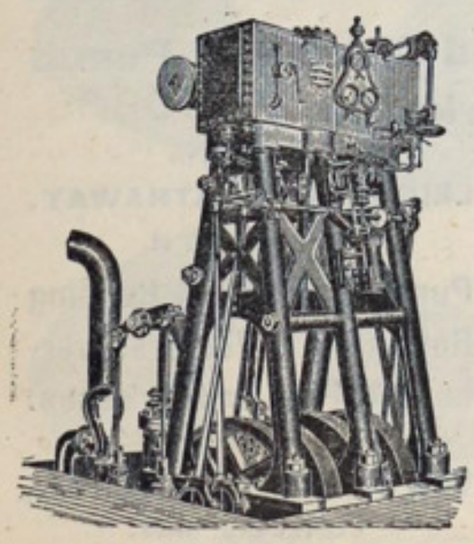

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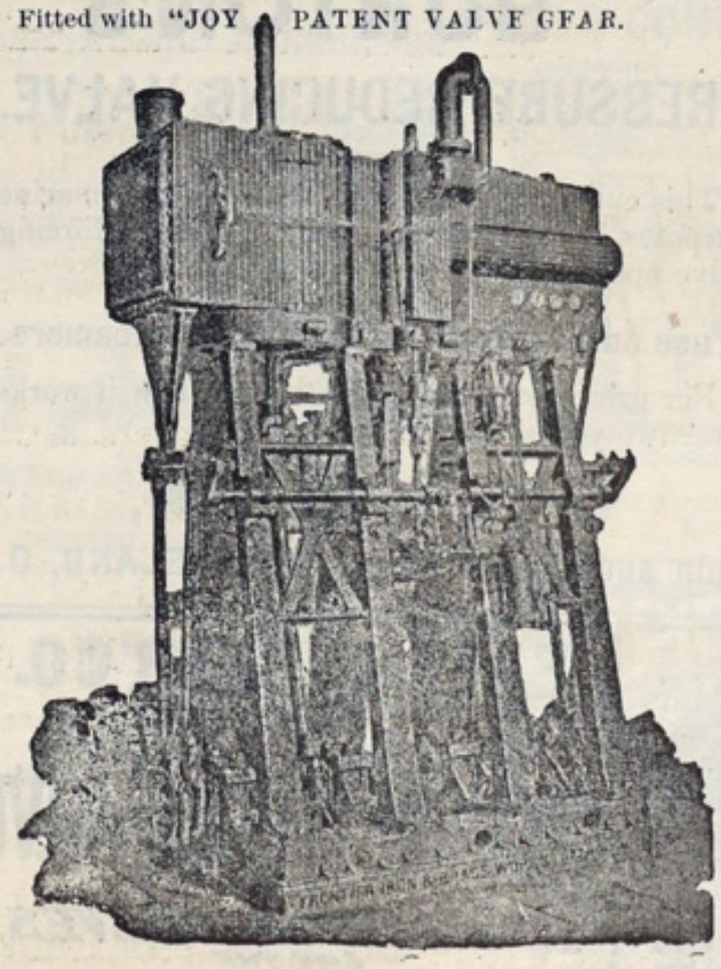

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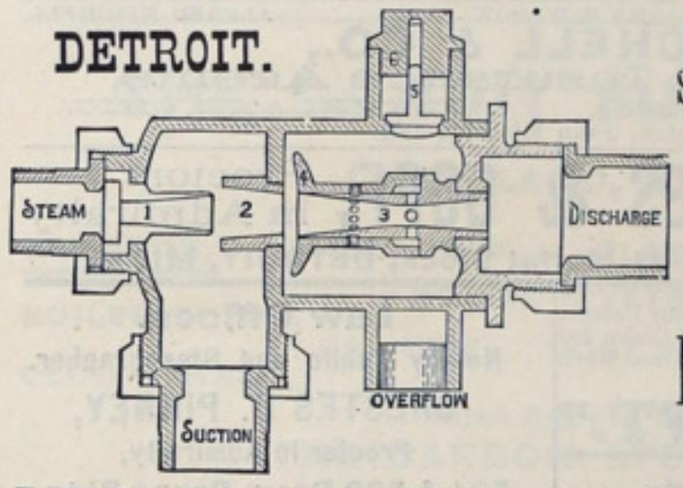

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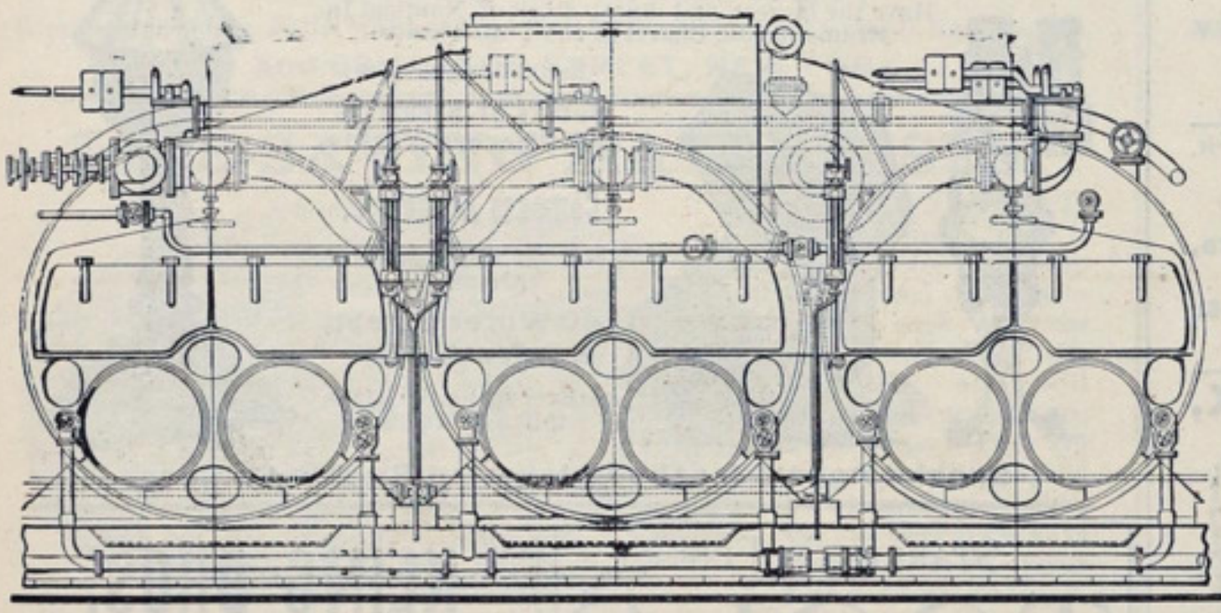

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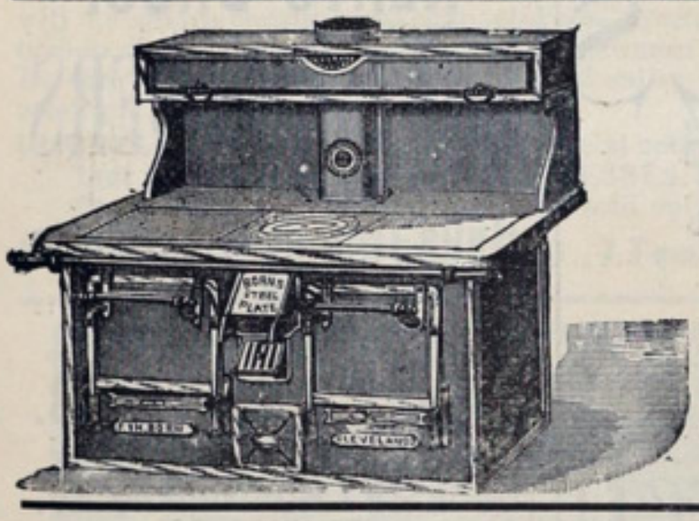

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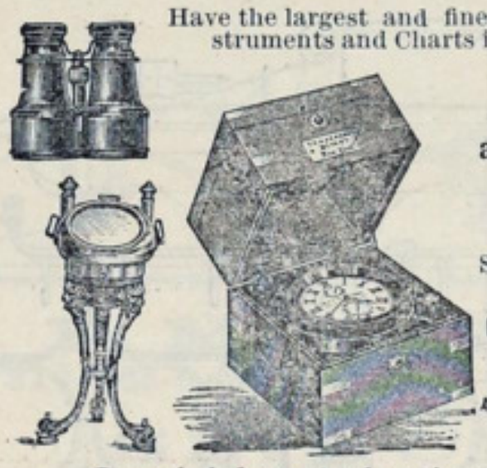
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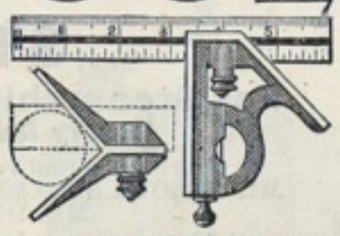
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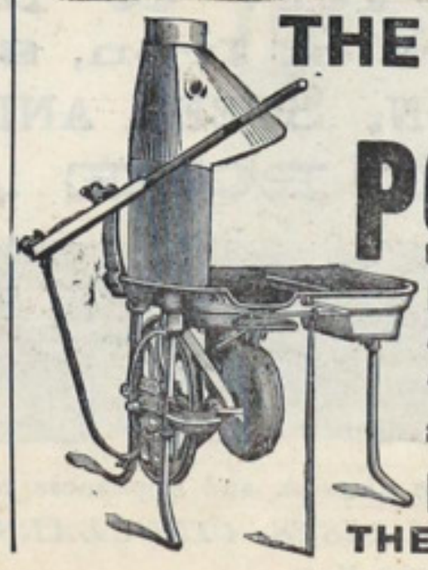
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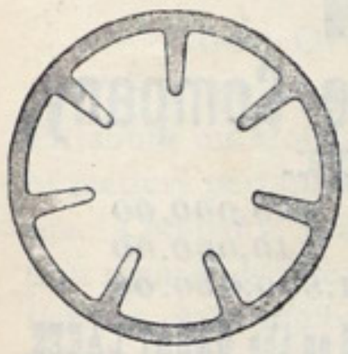

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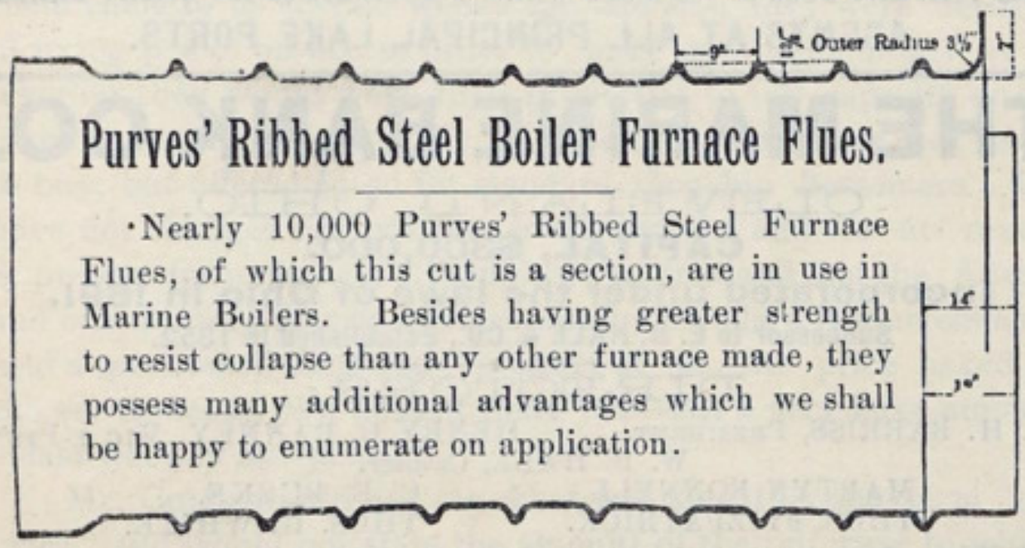

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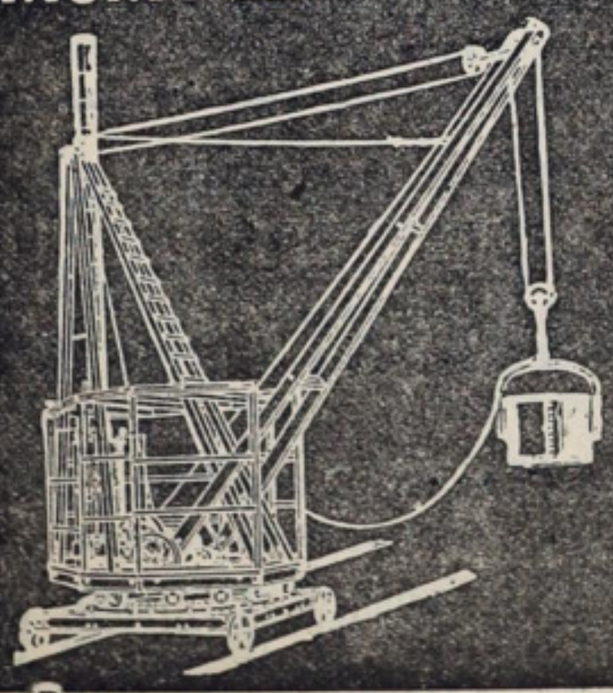

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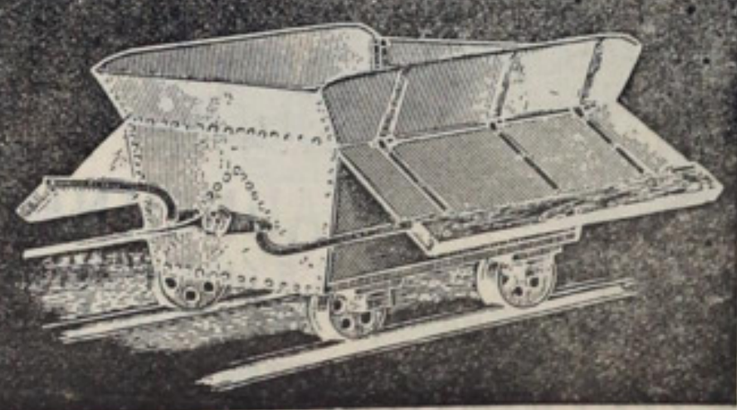

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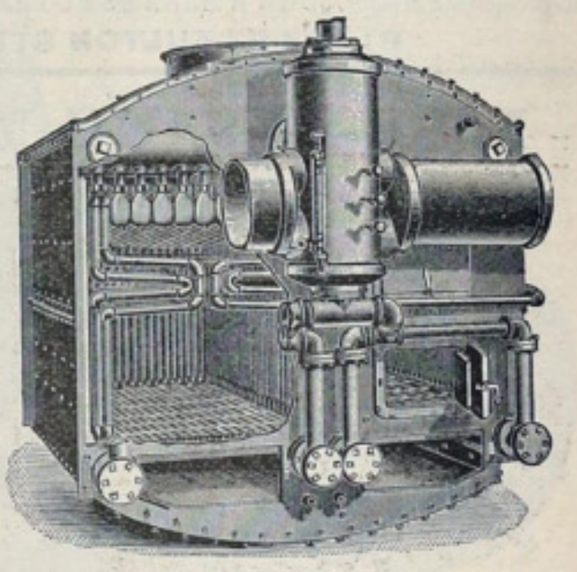

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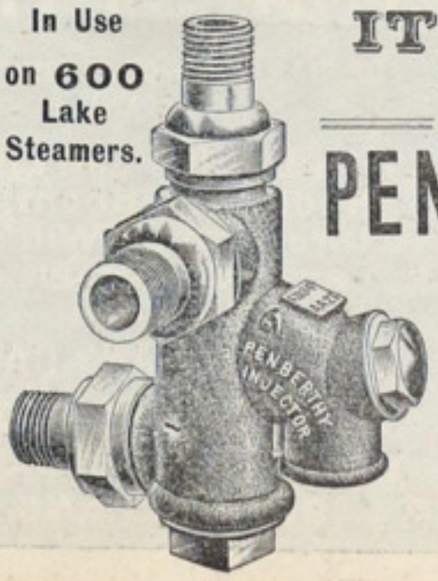

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